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Child safety barrier

The present invention relates to a child safety barrier of the type which comprises a gate mounted in a frame, said barrier can be fastened in an opening with clamping devices which can be clamped against the sides in the opening for clamping the barrier therein.

Child safety gates are used as a temporary barrier of doorways, stairways, windows, and similar openings to deny small children and animals access by inserting and securing the barrier in the opening.

There are known child safety barriers which comprise a frame with a central gate and there are also known barriers, where the gate is located at one side thereof.

The purpose of the invention has been to make these gates more safe accordingly by the invention there has been provided a barrier with a special hinge construction which prevents buckling at the hinge, and the barrier has also a special closing mechanism having an extra protection against unintended opening and finally the barrier comprises an indicator device to indicate the clamping in the opening.

An embodiment of the invention shall be explained further below with reference to the enclosed drawings comprising the figures 1-12.

The child safety barrier includes a frame comprising a base member 2 with an upright post member 4 and by the upper end of this a short upper rod reaching to the one side. The space between the upper and base member is filled up with vertical rods. On the other side of the post a gate 10 is hinged.

For fastening of the barrier in the opening there is in each corner of the plane of the barrier, i.e. in both ends of the base member 2 and the free end of the upper member 5 a threaded rod 12 with a friction block, said threaded rods can be pulled in and out and fixed by means of a counter nut 14 so that the length can be adjusted to the size of actual opening.

10. The gate comprises a closing mechanism which has also a corresponding threaded bar with a friction block which can be pulled in and out and fixed with a counter nut, and which by means of the closing mechanism can be clamped against the opening.

15. At the top the gate is hinged to the post by means of a specially designed hinge 16. A substantially tube shaped hinge part 18 of plastic with a hole 20 for a pivot 22 is mounted over the upper rod of the gate. At this location 20 the hinge part is solid. On the lower part of the hinge part there is a slot 24. The other hinge part 26 is attached to the post 4, on to which an angle 28 is welded. The hinge part has a pocket, by means of which this can be slipped in over the perpendicularly 25. projecting flap of the angle on the post. On the upper part of the hinge part there is a fin 30 projecting upwards, which fits loosely up into the slot 24 on the other hinge part. There is also a through-going hole 32 for the pivot 22. The hole is carried through the angle 30 so that the hinge part is fixed by means of the pivot 22. On the lower side of the hinge part the hole is continued in a tube section and at the back there is a contact surface facing the post or more precisely the angle. Furthermore, there is a reinforcing rib. The pivot 22 is 35 attached by tight fitting or by screwing it into the upper part 18 of the hinge, and in the closed position of

the gate the pivot is still hidden in the hinge, i.e. the pivot does not project beneath the hinge.

At the bottom the gate is hinged to the base member by means of a pivot 34 situated through a hole in the bottom rod 36 of the gate further down through a hole in the top side of the base member 2 of the frame. The end of the pivot 34 is bent to the side so that it functions as a stop for pulling up the gate. The pivot is inserted by manipulating it through the hole in the bottom rod of the gate and further down into the bottom rod of the frame. The pivot 34 can be welded to the gate by the head.

To open the barrier the gate is lifted by means of which the upper part of the hinge is lifted clear of the fin 30 on the lower part 26. When the gate is swung open the upper part 18 will be riding on the fin 30. The vertical lift of the gate is as mentioned limited by the pivot 34 situated in the bottom hinging of the gate. In the closed position of the gate the hinge is fixed against sideways deflection as the fin 30 here is situated in the slot 24 on the under side of the upper part 18 of the hinge. Furthermore, the forces appearing in the upper member of the gate will be transmitted directly to the vertical post 4, as the rear edge of the upper hinge part is at the top shaped as an planar contact plane 40 for contact against the pillar whereas the edge at the slot region is shaped as rounded sliding surfaces 42 situated within the contact plane. In the opening position the contact plane 30 - 40 is lifted above the pillar 4 and by swinging up the gate, the sliding surface 42 will slide upon the pillar. Altogether, the upper part of the barrier will in closed position stand as a nearly rigid through-going connection comprising the upper rod of the gate, the upper part of the pillar 35, the pillar and the upper rod of the frame.

In closed position the front corner at the below of the gate is secured against deflection by means of an U-shaped fittings gripping around the top side of the base member 2. By lifting the gate for its opening, the fittings 44 goes clear of the base member. The fittings 44 is positioned on the rounding where the lower rod of the gate continue into the front rod 46, by means of which the wedge-shaped space next to the base member is blocked so that children cannot get their toes or fingers caught in the gate.

As stated earlier, the gate comprises a closing mechanism 48, which also has a threaded bar 50 with a friction block. The thread block is situated in a through-going hole in a sliding element 52 and sticks with its end into the upper rod 54. In the element 52 a nut 56 is casted in so that the threaded bar can be screwed in and out to fit the actual size of an opening. At the front the element 20 has a sideways projecting cross wall 58, to which in each sides a recess with a camface 60 is contiguous. A handle 62 comprises two parallel sidewalls 64, which on the rear section is connected with a curved member 66 fitting the upper rod of the gate. At the front the sidewalls have a 25 side plate with a projection 70 co-operating with the camface 60 in the recess on the element 52. When the handle 62 is closed, i.e. in horizontal position, the threaded bar and thereby the friction block are in their projecting locked position. By opening the gate the 30 handle is turned thus causing the pins 70 in co-operation with the camface to pull back the threaded bar with the friction block out of contact with the opening, in which the barrier is placed. The gate can then be lifted and opened as described previously. By closing the gate the 35 handle is pushed downwards thus causing the front edge of the sides 64 to press against the cross wall 58 of the

10. An element by means of which this is pushed forward to clamp the friction block against the opening. On the edge of the element there is a projection 72 co-operation with a slot 74 in the side plates. In closed position the 15. projections are positioned in the slot. By lifting the handle to open the gate, the projections 72 will counteract this. Only with an extra firm grip on the handle it will be possible to swing it upwards as the sidewalls thereby are forced from each other and slide on top of the projections. Contrary the projections will 20. operate in causing the handle to shut with a "snap effect" and to remain in the closed position. As an additional securing against opening of the gate the handle is blocked by means of a spring-loaded blocking 25. knob 76 arranged in an element in the shape of flat plastic block 78. This block is firmly fixed between a projecting end of the upper rod 54 of the gate and a parallel flat iron 80 welded to the front rod 46, which 30. is a pipe, and the neighbour rod 82 of the gate. The rear edge of the block is undercut and grips around the rod 46. At the front the block is fixed by means of a pin 84 which projects downwards into the pipe 46. The axis of 35. rotation of the handle is embedded in a cross hole 86 in the block. The blocking knob 76 is designed as an entity with the plastic block and placed directly against the side plates 68 or designed as shown in fig. 11 as a spring-loaded 88 loose knob 90 embedded in a recess 92 in the plastic block 78, and which grips into a hole in the side plate 68 of the handle. The handle is thus blocked in the closed position. In order to open the gate two independent movements are thus necessary, i.e. pushing in the blocking knob 76 as well as lifting the handle. Beyond this, the entire gate has to be lifted. The gate is hereby effectively secured against unintended opening, and at the same time it is still easy to open for an adult person. Besides being an integrated part of the

plastic block, the blocking knob can of course also be shaped as a separate spring loaded knob embedded in the plastic piece.

5 Due to the yielding of the opening where the barrier is placed, e.g. yielding banisters, it can be difficult to decide how hard the gate has to be clamped. For this purpose the upper rod of the frame is shaped as an indicator unit. In the rod 6 a spring is embedded 10 affecting a pipe section 88, in which the threaded bar with the friction block 4 is situated. On the pipe there are two indication marks 90, 92, the first showing the sufficient clamping of the frame itself, the second showing sufficient clamping of the closing mechanism of 15 the gate.

In order to improve the securing of the rubber or plastic coating 94 of the friction block on the supporting plate 96, this can be equipped with one or several holes 98, mainly three evenly distributed over the plate, and where the coating penetrates into the holes, cf. fig. 12. The coating is thus effectively secured against stripping off by sideways forces on the gate. This applies by loosely fixed coating as well as vulcanized coating.

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Claims:

1. A child safety barrier having a gate, said gate being of the type which in order to be opened should be lifted for rotation around the hinges characterised in that the hinges comprise a fin in the plane of the barrier for engagement with a corresponding slot in the other part of the hinge.

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2. A child safety barrier according to claim 1 characterised in that the handle comprises a spring loaded blocking button.

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3. A child safety barrier according to claim 1 or 2 characterised in that a corner of the barrier by means of which the barrier is to be clamped is designed as a pressure indicator.

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4. A child safety barrier according to claim 1, 2 or 3 characterised in that the friction blocks are designed with holes or protrusions for engagement with the lining of the friction blocks.

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1/2

Fig. 3

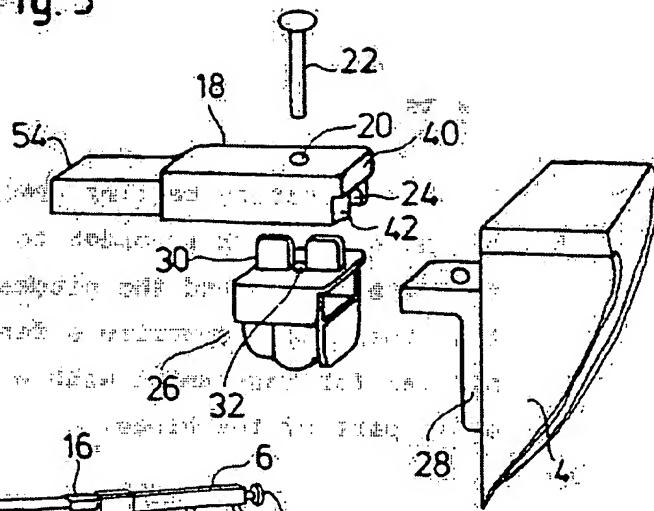


Fig. 1

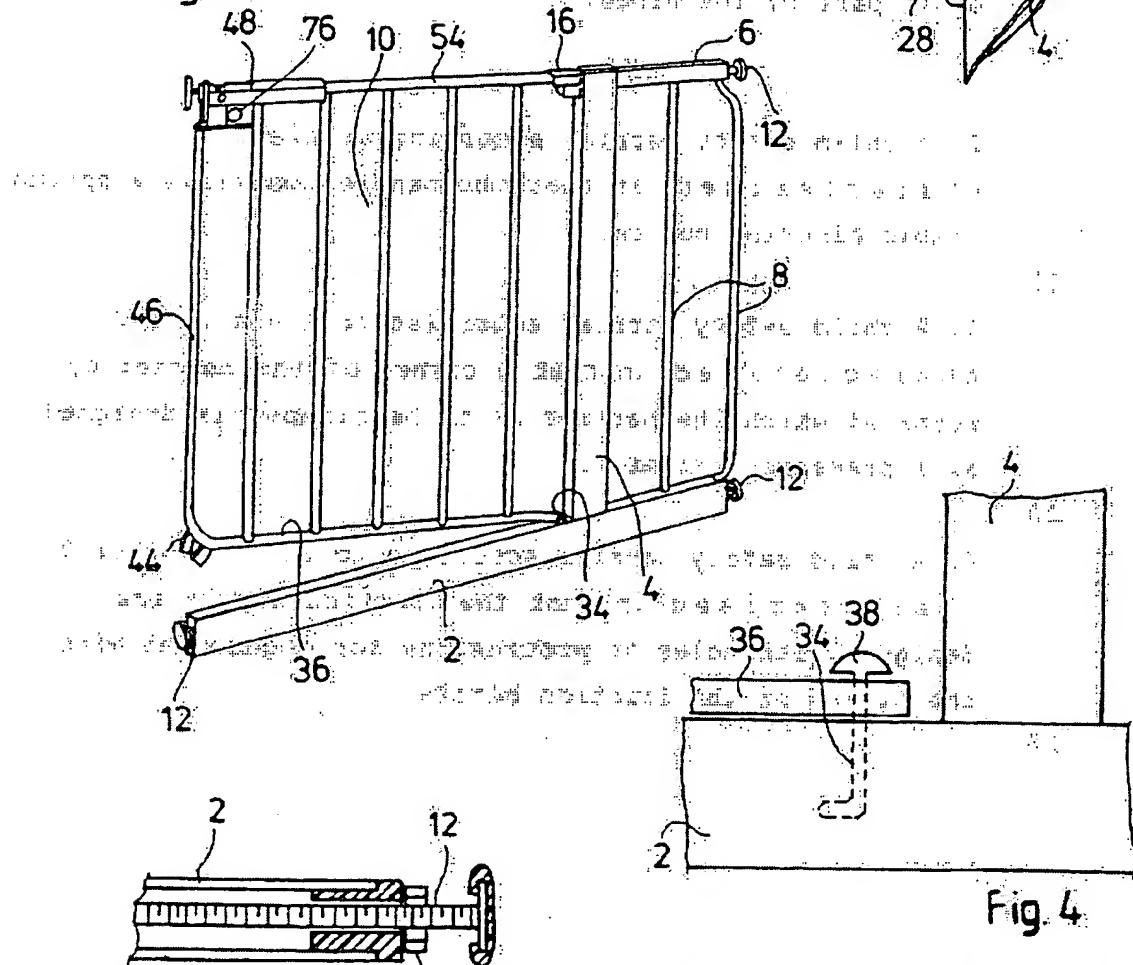


Fig.2

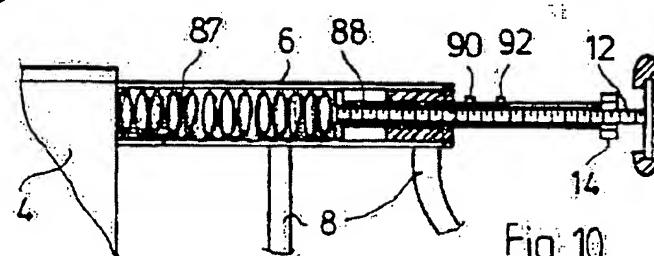
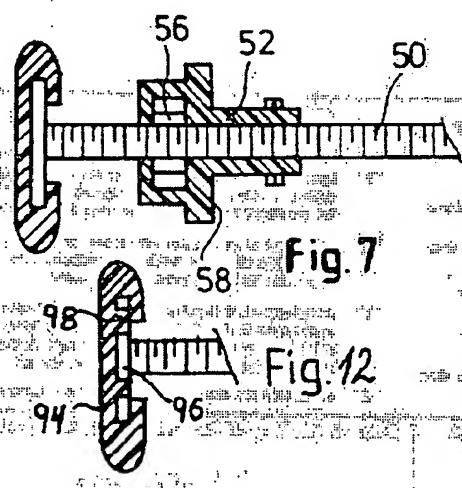
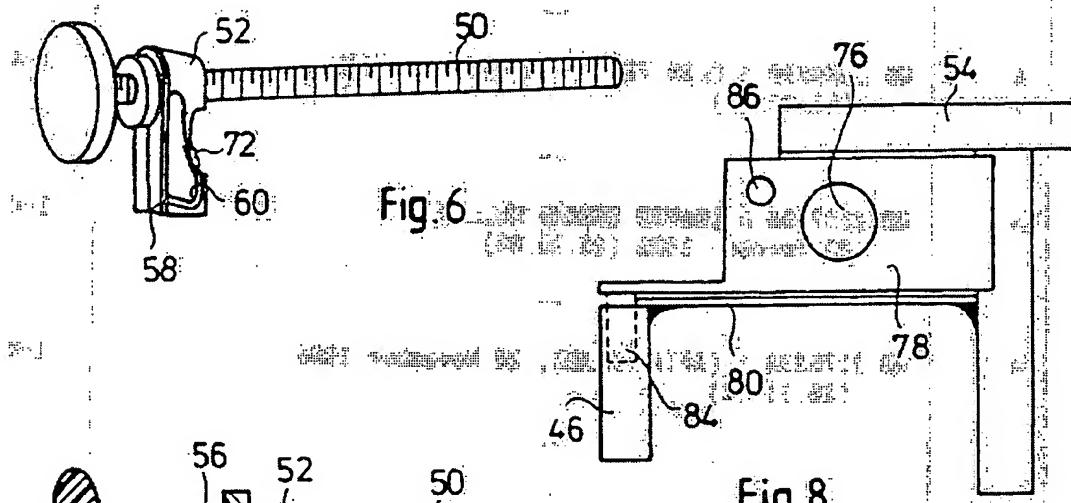
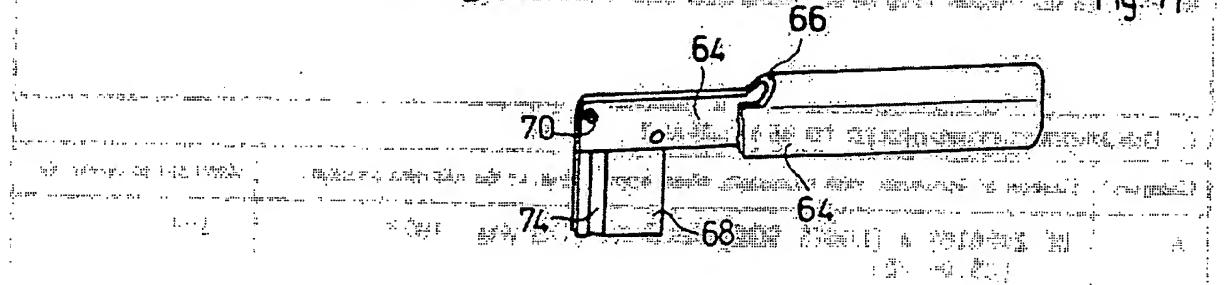
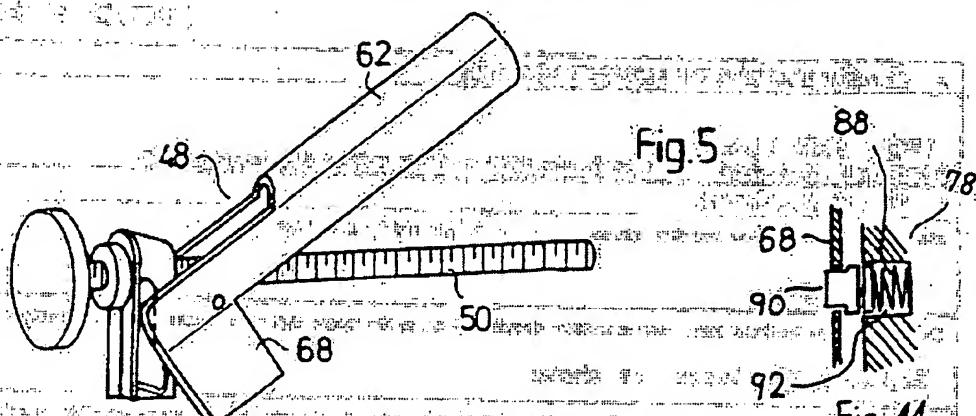


Fig. 10

SUBSTITUTE SHEET

2/2
FIGURE 5-12 LOCATING LEVER LINE

SUBSTITUTE SHEET

INTERNATIONAL SEARCH REPORT

International application No:

PCT/DK 97/00190

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: E06B 11/02

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B. FIELDS SEARCHED

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 2056168 A (LOUIS SCHIERHOLZ KG), 25 May 1972 (25.05.72)	1-4
A	GB 2088939 A (LIM TIA KOK), 16 June 1982 (16.06.82)	1-4
A	GB 2157350 A (DAVID EDWARD MULLAN), 23 October 1985 (23.10.85)	1-4
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